

What is claimed is:

1. An isolated polypeptide comprising a sequence of amino acid residues that is at least 75% identical in amino acid sequence to residues 40-285 of SEQ ID NO:2, wherein said sequence comprises:

Gly-Xaa-Xaa or Gly-Xaa-Pro repeats forming a collagen domain, wherein Xaa is any amino acid; and

a carboxyl-terminal C1q domain comprising 10 beta strands.

2. An isolated polypeptide according to claim 1, wherein said polypeptide that is at least 90% identical in amino acid sequence to residues 16-285 of SEQ ID NO:2.

3. An isolated polypeptide according to claim 1, wherein said collagen domain consists of 24 Gly-Xaa-Xaa repeats and 10 Gly-Xaa-Pro repeats.

4. An isolated polypeptide according to claim 1, wherein said carboxyl-terminal C1q domain comprises the sequence of SEQ ID NO:5.

5. An isolated polypeptide according to claim 1, wherein said carboxy-terminal C1q domain comprises amino acid residues 151-155, 172-174, 180-183, 187-190, 193-205, 208-214, 220-227, 229-241, 246-251 and 269-274 of SEQ ID NO:2.

6. An isolated polypeptide according to claim 1, wherein any differences between said polypeptide and SEQ ID NO:2 are due to conservative amino acid substitutions.

7. An isolated polypeptide according to claim 1, wherein said polypeptide specifically binds with an antibody that specifically binds with a polypeptide consisting of the amino acid sequence of SEQ ID NO:2.

8. An isolated polypeptide according to claim 1, wherein said collagen domain comprises amino acid residues 41-141 of SEQ ID NO:2.

9. An isolated polypeptide according to claim 1, wherein said carboxy-terminal C1q domain comprises amino acid residues 142-285 of SEQ ID NO:2.

10. An isolated polypeptide according to claim 2, wherein said polypeptide comprises residues 16-285 of SEQ ID NO:2.

11. An isolated polypeptide according to claim 1, covalently linked at the amino or carboxyl terminus to a moiety selected from the group consisting of affinity tags, toxins, radionucleotides, enzymes and fluorophores.

12. An isolated polypeptide selected from the group consisting of:

a) a polypeptide consisting of a sequence of amino acid residues that is 75% identical in amino acid sequence to amino acid residue 40 to amino acid residue 141 of SEQ ID NO:2;

b) a polypeptide consisting of a sequence of amino acid residues that is 75% identical in amino acid sequence to amino acid residue 142 to amino acid residue 285 of SEQ ID NO:2; and

c) a polypeptide consisting of a sequence of amino acid residues that is 75% identical in amino acid sequence to amino acid residue 40 to 285 of SEQ ID NO:2.

13. A fusion protein comprising a first portion and a second portion joined by a peptide bond, said first portion consisting of a polypeptide selected from the group consisting of:

a) a polypeptide comprising a sequence of amino acid residues that is at least 75% identical in amino acid sequence to amino acid residue 16 to amino acid residue 285 of SEQ ID NO:2;

b) a polypeptide comprising a sequence of amino acid residues as shown in SEQ ID NO:2 from amino acid residue 1 to amino acid residue 281;

c) a polypeptide comprising a sequence of amino acid residues as shown in SEQ ID NO:2 from amino acid residue 16 to amino acid residue 285;

d) a portion of the zacrp2 polypeptide as shown in SEQ ID NO:2, comprising the collagen-like domain or a portion of the collagen-like domain capable of dimerization or oligomerization;

e) a portion of the zacrp2 polypeptide as shown in SEQ ID NO:2, comprising the C1q domain or an active portion of the C1q domain; or

f) a portion of the zacrp2 polypeptide as shown in SEQ ID NO:2 comprising of the collagen-like domain and the C1q domain; and

    said second portion comprising another polypeptide.

14. A fusion protein according to claim 13, wherein said first portion is selected from the group consisting of:

a) a polypeptide consisting of the sequence of amino acid residue 40 to amino acid residue 141 of SEQ ID NO:2;

b) a polypeptide consisting of the sequence of amino acid residue 142 to amino acid residue 285 of SEQ ID NO:2;

c) a polypeptide consisting of the sequence of amino acid residue 40 to 285 of SEQ ID NO:2.

15. A fusion protein according to claim 13, wherein said second portion comprises a collagen or C1q domain from an ACRP family protein.

16. A polypeptide according to Claim 1; in combination with a pharmaceutically acceptable vehicle.

17. An antibody or antibody fragment that specifically binds to an isolated polypeptide comprising a sequence of amino acid residues that is at least 95% identical in amino acid sequence to residues 40-285 of SEQ ID NO:2, wherein said sequence comprises:

Gly-Xaa-Xaa or Gly-Xaa-Pro repeats forming a collagen domain, wherein Xaa is any amino acid; and

a carboxyl-terminal C1q domain comprising 10 beta strands.

18. An antibody according to claim 17, wherein said antibody is selected from the group consisting of:

- a) polyclonal antibody;
- b) murine monoclonal antibody;
- c) humanized antibody derived from b); and
- d) human monoclonal antibody.

19. An antibody fragment according to claim 17, wherein said antibody fragment is selected from the group consisting of F(ab'), F(ab), Fab', Fab, Fv, scFv, and minimal recognition unit.

20. An anti-idiotype antibody that specifically binds to said antibody of claim 17.

21. An isolated polynucleotide encoding a polypeptide wherein the encoded polypeptide comprises a sequence of amino acid residues that is at least 95% identical in amino acid sequence to residues 40-285 of SEQ ID NO:2, and wherein said sequence comprises:

Gly-Xaa-Xaa or Gly-Xaa-Pro repeats forming a collagen domain, wherein Xaa is any amino acid; and

a carboxyl-terminal C1q domain comprising 10 beta strands.

22. The isolated polynucleotide of claim 21, wherein the encoded polypeptide is at least 95% identical in amino acid sequence to residues 16-285 of SEQ ID NO:2.

23. The isolated polynucleotide of claim 21, wherein said collagen domain consists of 24 Gly-Xaa-Xaa repeats and 10 Gly-Xaa-Pro repeats.

24. The isolated polynucleotide of claim 21, wherein said carboxyl-terminal C1q domain comprises the sequence of SEQ ID NO:5.

25. The isolated polynucleotide of claim 21, wherein said carboxy-terminal C1q domain comprises amino acid residues 151-155, 172-174, 180-183, 187-190, 193-205, 208-214, 220-227, 229-241, 246-251 and 269-274 of SEQ ID NO:2.

26. The isolated polynucleotide of claim 21, wherein any differences between said polypeptide and SEQ ID NO:2 are due to conservative amino acid substitutions.

27. The isolated polynucleotide of claim 21, wherein said polypeptide specifically binds with an antibody that specifically binds with a polypeptide consisting of the amino acid sequence of SEQ ID NO:2.

28. The isolated polynucleotide of claim 21, wherein said collagen domain consists of amino acid residues 41-141 of SEQ ID NO:2.

29. The isolated polynucleotide of claim 21, wherein said carboxy-terminal C1q domain consists of amino acid residues 142-285 of SEQ ID NO:2.

30. The isolated polynucleotide of claim 21, wherein said polypeptide comprises residues 16-285 of SEQ ID NO:2.

31. An isolated polynucleotide comprising a sequence selected from the group consisting of:

- a) nucleotide 1 to nucleotide 1161 of SEQ ID NO:1;
- b) nucleotide 133 to nucleotide 987 of SEQ ID NO:1;
- c) nucleotide 178 to nucleotide 987 of SEQ ID NO:1;
- d) nucleotide 250 to nucleotide 987 of SEQ ID NO:1;
- e) nucleotide 556 to nucleotide 987 of SEQ ID NO:1;
- f) nucleotide 133 to nucleotide 555 of SEQ ID NO:1;
- g) nucleotide 178 to nucleotide 555 of SEQ ID NO:1;
- h) nucleotide 250 to nucleotide 555 of SEQ ID NO:1;

i) a polynucleotide encoding a polypeptide, wherein the encoded polypeptide consists of a sequence of amino acid residues that is at least 95% identical to a polypeptide consisting of amino acid residues 40 to 141 of SEQ ID NO:2;

j) a polynucleotide encoding a polypeptide, wherein the encoded polypeptide consists of a sequence of amino acid residues that is at least 95% identical to a polypeptide consisting of amino acid residues 142 to 285 of SEQ ID NO:2;

k) a polynucleotide encoding a polypeptide, wherein the encoded polypeptide consists of a sequence of amino acid residues that is at least 95% identical to a polypeptide consisting of amino acid residues 40 to 285 of SEQ ID NO:2;

l) a polynucleotide encoding a polypeptide, wherein the encoded polypeptide consists of a sequence of amino acid

residues that is at least 95% identical to a polypeptide consisting of amino acid residues 16 to 141 of SEQ ID NO:2;

m) a polynucleotide that remains hybridized following stringent wash conditions to a polynucleotide consisting of a nucleotide sequence of SEQ ID NO:1, or complement of SEQ ID NO:1; and

n) nucleotide sequences complementary to a), b), c), d), e), f), g), h), i), j), k), or l).

32. An isolated polynucleotide encoding a fusion protein, wherein the fusion protein comprises a first portion and a second portion joined by a peptide bond, and wherein the first portion is selected from the group consisting of:

a) a polypeptide comprising a sequence of amino acid residues that is at least 95% identical in amino acid sequence to amino acid residues 40 to 285 of SEQ ID NO:2;

b) a polypeptide comprising a sequence of SEQ ID NO:2;

c) a polypeptide comprising amino acid residues 16 to 285 of SEQ ID NO:2;

d) a portion of a polypeptide of SEQ ID NO:2 comprising the collagen-like domain or a portion of the collagen-like domain capable of dimerization or oligomerization;

e) a portion of a polypeptide of SEQ ID NO:2 containing the C1q domain; or

f) a portion of a polypeptide of SEQ ID NO:2 including a collagen-like domain and a C1q domain; and  
said second portion comprising another polypeptide.

33. An isolated polynucleotide consisting of a nucleotide sequence of SEQ ID NO:10.

34. An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment encoding an isolated polypeptide comprising a sequence of amino acid residues that is at least 95% identical in amino acid sequence to residues 40-285 of SEQ ID NO:2, wherein said sequence comprises:

Gly-Xaa-Xaa or Gly-Xaa-Pro repeats forming a collagen domain, wherein Xaa is any amino acid; and

a carboxyl-terminal C1q domain comprising 10 beta strands; and

a transcription terminator.

35. An expression vector of claim 34, wherein said DNA segment encodes a polypeptide that is at least 95% identical in amino acid sequence to residues 16-285 of SEQ ID NO:2.

36. The expression vector of claim 34, wherein said collagen domain consists of 24 Gly-Xaa-Xaa repeats and 10 Gly-Xaa-Pro repeats.

37. The expression vector of claim 34, wherein said carboxyl-terminal C1q domain comprises a sequence of SEQ ID NO:5.

38. The expression vector of claim 34, wherein said carboxy-terminal C1q domain comprises amino acid residues 151-155, 172-174, 180-183, 187-190, 193-205, 208-214, 220-227, 229-241, 246-251 and 269-274 of SEQ ID NO:2.

39. The expression vector of claim 34, wherein any differences between said polypeptide and SEQ ID NO:2 are due to conservative amino acid substitutions.

40. The expression vector of claim 34, wherein said polypeptide specifically binds with an antibody that specifically binds with a polypeptide consisting of the amino acid sequence of SEQ ID NO:2.

41. The expression vector of claim 34, wherein said collagen domain consists of amino acid residues 41-141 of SEQ ID NO:2.

42. The expression vector of claim 34, wherein said carboxy-terminal C1q domain consists of amino acid residues 142-285 of SEQ ID NO:2.

43. The expression vector of claim 34, wherein said DNA segment encodes a polypeptide comprising amino acid residues 16-285 of SEQ ID NO:2.

44. The expression vector of claim 34, wherein said DNA segment encodes a polypeptide covalently linked at the amino or carboxyl terminus to an affinity tag.

45. The expression vector of claim 34, wherein said DNA segment further encodes a secretory signal sequence operably linked to said polypeptide.

46. The expression vector of claim 34, wherein said secretory signal sequence comprises residues 1-15 of SEQ ID NO:2.

47. A cultured cell into which has been introduced an expression vector according to claim 34, wherein said cell expresses said polypeptide encoded by said DNA segment.

48. A method of producing a polypeptide comprising:  
culturing a cell into which has been introduced an expression vector according to claim 34;  
whereby said cell expresses said polypeptide encoded by said DNA segment; and  
recovering said expressed polypeptide.